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09/997,143	11/29/2001	Mike Peng Li	12583.0019US01	3587

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MERCHANT & GOULD PC  
P.O. BOX 2903  
MINNEAPOLIS, MN 55402-0903

EXAMINER

KIM, PAUL L

ART UNIT PAPER NUMBER

2857

DATE MAILED: 10/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Applicati n No.

09/997,143

Applicant(s)

LI ET AL

Examin r

Paul L Kim

Art Unit

2857

-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 November 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 13-33 is/are rejected.
- 7) ☒ Claim(s) 11, 12 and 34 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

**DETAILED ACTION**

***Claim Objections***

1. Claim 11 is objected to because of the following informalities: Claim 11 should be dependent on claim 5, not claim 4. Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 4, 5, 9-11, 13, 16, 17, 19-22, 24, 25, 28, and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by Peryerl et al.

With regard to claims 1 and 19, Peryerl et al teaches a method for determining a response characteristic of a nth order linear system comprising: supplying an input signal to a system (fig. 1, part 2), measuring an output signal of the linear system that occurs in response (col. 4, lines 46-47), constructing a variance record of a non-uniformly sampled measurable quantity extracted from the output signal (col. 11, lines 26-35), and obtaining the response characteristic of the system based on a mathematical relationship of the variance record of the measurable quantity and a response function (col. 20, lines 16-20).

With regard to claims 4, 9, 10, 16, 17, 25, and 29, Peryerl et al teaches the response function being a transfer function and generating an expression of the function

of the linear system by manipulating the transfer function parameters to fit a variance model (col. 11, lines 61+)

With regard to claims 5 and 11, Peryerl et al teaches generating an expression for the transfer function by manipulating a frequency parameter (col. 12, lines 3-8) and a damping factor parameter (col. 12, lines 13-15).

With regard to claim 13, Peryerl et al teaches a system for determining a response characteristic of a nth order linear system comprising: a measurement device configured to receive and measure an output signal resulting from supplying an input signal to the linear system (col. 4, lines 47-51) and a processing device configured to compute the response characteristic of the linear system from the output signal measurement by constructing a variance record of a non-uniformly sampled quantity by the measurement device (col. 11, lines 12-25) and obtaining the response characteristic based on a mathematical relationship of the variance record of the measurable quantity and a response function (col. 20, lines 16-20).

With regard to claims 20-22, Peryerl et al teaches the output signal being a train of clock pulses and measurable quantity being jitter of the output signal, the variance record comprising a record of the jitter variance of the output of the signal as a function of time (col. 3, lines 57-64).

With regard to claim 24, Peryerl et al teaches a method for determining a response characteristic of a nth order linear system comprising: supplying an input signal to a linear system (fig. 1, part 2), measuring an output signal of the linear system that occurs in response (col. 4, lines 46-47), constructing a variance record of a

measurable quantity extracted from the output signal (col. 11, lines 12-25), and fitting a model containing parameters of the response function to a variance record based set of data by manipulating the parameters to provide a best fit of the model (col. 3, lines 39-45).

With regard to claim 28, Peryerl et al teaches a method for determining a response characteristic of a nth order linear system comprising: supplying an input signal to a system (fig. 1, part 2), measuring an output signal of the linear system that occurs in response (col. 4, lines 46-47), constructing a variance record of a measurable quantity extracted from the output signal (col. 11, lines 12-25), estimating the response function by fitting a model containing parameters of the response function to a variance record based set of data by manipulating the parameters to provide a best fit of the model (col. 3, lines 39-45), and measuring a residue between the model and the set of data to find an error estimate of the response function (col. 11, lines 26-35).

4. Claims 32 and 33 are rejected under 35 U.S.C. 102(b) as being anticipated by Peryerl et al.

With regard to claim 32, Handel teaches a method of finding a response for a linear system comprising: supplying an input signal to the nth order linear system (fig. 7, step 100), obtaining a power spectral density record for an output signal of the linear system produced in response to the input signal (col. 6, lines 5+), assuming a pole-zero function (col. 8, lines 58-62), and manipulating pole-zero locations to fit the pole-zero function to the power spectral density record (col. 8, lines 63+).

With regard to claim 33, Handel teaches constructing a variance record of a measurable quantity from the output signal and converting to a power spectral density record according to a mathematical relationship between the variance record and a response function (fig. 7, steps 120 & 130).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2, 3, 8, 14, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peryerl et al in view of Sunter et al.

Peryerl et al does not specify the linear system under test being a phase locked loop. Sunter et al teaches a method of testing a phase locked loop in which clock pulses is inputted to the system and a jitter variance record is constructed (fig. 4, steps 46-50 and abstract). It would have been obvious to one of ordinary skill in the art, at the time of the invention, to modify Peryerl et al, so that a phase locked loop could be tested, as taught by Sunter et al, so as to derive the added benefit of increased system flexibility.

7. Claims 6, 7, 18, 23, 26, 27, 30, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peryerl et al in view of Handel.

With regard to claims 6, 7, 18, 23 Peryerl et al teaches using spectral components for determining a response but does not specify finding or using a power spectral density for the system. Handel teaches using a power spectral density for a linear system comprising a filter bank and corresponding frequency bands (abstract & col. 4, lines 27+). It would have been obvious to one of ordinary skill in the art, at the time of the invention, to modify Peryerl et al, so that a PSD function of a linear system is created, as taught by Handel, so as to derive the benefit of improved signal quality.

With regard to claims 26, 27, 30, and 31, Peryerl et al does not specify converting the variance record to a power density record, assuming a pole-zero function, and manipulating the pole-zero locations to the best fit. Handel teaches converting the variance record to a power density record (col. 6, lines 5+), assuming a pole-zero function, and manipulating the pole-zero locations to best fit the record (col. 8, lines 63+). It would have been obvious to one of ordinary skill in the art, at the time of the invention, to modify Peryerl et al, so that the variance record could be converted to a power density record and a pole-zero is assumed, as taught by Handel, so as to derive the added benefit of improved system performance and reliability.

***Allowable Subject Matter***

8. Claims 12 and 34 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

**Conclusion**

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Barr et al and Linville, Jr. et al both teach a method of mathematically modeling a variance, containing noise, of seismic exploration data.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul Kim whose telephone number is 703-305-7468. The examiner can normally be reached on Monday-Thursday 10:00-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc Hoff can be reached on 703-308-1677. The fax phone numbers for the organization where this application or proceeding is assigned are 703-746-4440 for regular communications and for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

PK  
September 30, 2003

  
MARC S. HOFF  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 280